Mechanical properties of interlaminer Kevlar29 and Al2O3 powder/epoxy composite plates using an analytical approach

ABSTRACT

In this study, the behaviour of laminated composite plates, fiber Kevlar29, Al2O3powder/epoxy and the suggested analytical solution for static analysis of composite plates were presented using general classical laminated plate theory. The Navier solutions are limited to simply support rectangular plates using static analysis. The results show that the effect of the deflections and stresses on the plate thicknessï toï length ratio, aspect ratio, modulus ratio, fiber orientation and the number of layers were observed. The deflection and stresses on laminated composite plate decreases with the increase in the number of layers, fiber orientation, and thickness of the laminated plates. These results indicate that the improvements in mechanical properties for aircraft body applications were achieved.

Keyword: Composite materials; Laminated plates; Mechanical properties; Navier solution; Deflection plate